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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,106	01/21/2004	Knud Reuter	CH-7961/LeA 35,552	3885

157 7590 08/25/2006

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EXAMINER	
WU, SHEAN CHIU	
ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/762,106	REUTER ET AL	
	Examiner	Art Unit	
	Shean C. Wu	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *26 and 27* is/are allowed.

6)☒ Claim(s) *21-22, 24-25 and 28-41* is/are rejected.

7)☒ Claim(s) *23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 32-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague because the polythiophene of the claims are not covered by claim 30. The anions and polyanions (counterions) are not part of formula (IV) in claim 30.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Krishnamoorthy et al. (Synthetic Metals 124 (2001), pages 471-475).

The reference discloses a polymer based on a rigid cyanobiphenyl substituted 3,4 ethylenedioxythiophene used in industrial applications such as electrochromic materials and light emitting diodes (see abstract and section 1). The synthesis of poly 3,4-ethylenedioxythiophene is discloses in section 3.1.

The product "**P2**" obtained from electropolymerization of monomer of formula 2 on page 472 anticipates the claimed compound when n=1 in Claim 38.

5. Claims 37 and 41are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamoorthy et al. cited in the section 4 above.

The present claim differs from the reference in that the reference does not specifically disclose the process for preparing conductive layers comprising the polythiophene of formula (IV), however, the reference polymer film comprising the present formula (IV) has conductivity. The studies of conductivity are shown in Fig. 1A and 1B. Also, see section 3.4. Therefore, it would have been obvious to those skilled in the art to expect the reference polymer film having a characteristic of conductive layer.

6. Claims 21, 24, 28, 30-31 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamoorthy et al. cited in the section 4 above.

The reference teaching has been previously set forth in section 3. The reference differs from the claims in that the claims exclude the reference compound having a

hexylene group. The present formulae (I) or (I-a) has a space group containing 1-20 alkylene. However, it is known that the length of space group $(CH_2)_6$ can be adjusted; therefore it would have been obvious to those skilled in the art to modify the starting material by adjusting the length of alkyl of cyanobiphenyl derivatives for the same electrochemical applications to arrive at the claimed invention.

7. Claims 21-22, 24-25, 28-31 and 34-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Kros et al. (Polymer Chemistry, 40(6), pages 738-747).

The reference discloses poly (3,4-ethylenedioxytiophene)-based copolymer for biosensor application. The 3, 4-ethyleendioxythiophene core structures with functional groups including phenylene ring (compound 4) is described in Scheme 1, which read on the present formula (I) and (I-a) when n=p=1, B=L=methylene, F=H and w=1, X^1= phenylene (formula II-a). The formula 3 of the reference also reads on the present formula (I) when n=p=1, A=$CH_2CR_1R_2CH_2$, R_1=CH_2OBz and R_2=H. The polymerization and copolymerization of monomers of the reference are disclosed in Table 1 on page 742. Also, see the mixture described on page 742, second paragraph and the section of conclusion on page 746. The reference polymer having conductive property anticipates the claimed invention.

8. Claims 28, 30-31, 34-36 and 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Besbes et al. (Advance Materials, 2001, 13. No.16 pages 1249-1252).

The reference discloses an electrochemical synthesis of polythiophene for applications in electrochromism, electrochemical and bioelectrochemical sensors. The polythiophene products are shown on page 1250. See the Scheme 1 and 2. The reference anticipates the claimed polythiophene.

9. Claims 37 and 41are rejected under 35 U.S.C. 103(a) as being unpatentable over Besbes et al. cited in the section 8 above.

The present claim differs from the reference in that the reference does not specifically disclose the process for preparing conductive layers comprising the polythiophene of formula (IV), however, the reference polymer film comprising the present formula (IV) has conductivity. The studies of conductivity are shown in Fig. 1A and 1B. Also, see section 3.4. Therefore, it would have been obvious to those skilled in the art to expect the reference polymer film having a characteristic of conductive layer.

Response to Arguments

10. Applicant's arguments with respect to claims 21-25 and 28-41 have been considered but are moot in view of the new grounds of rejection.

Allowable Subject Matter

11. Claim 23 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 26-27 are allowed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C. Wu whose telephone number is 571-272-1393. The examiner can normally be reached on 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shean C Wu
Primary Examiner
Art Unit 1756

scw